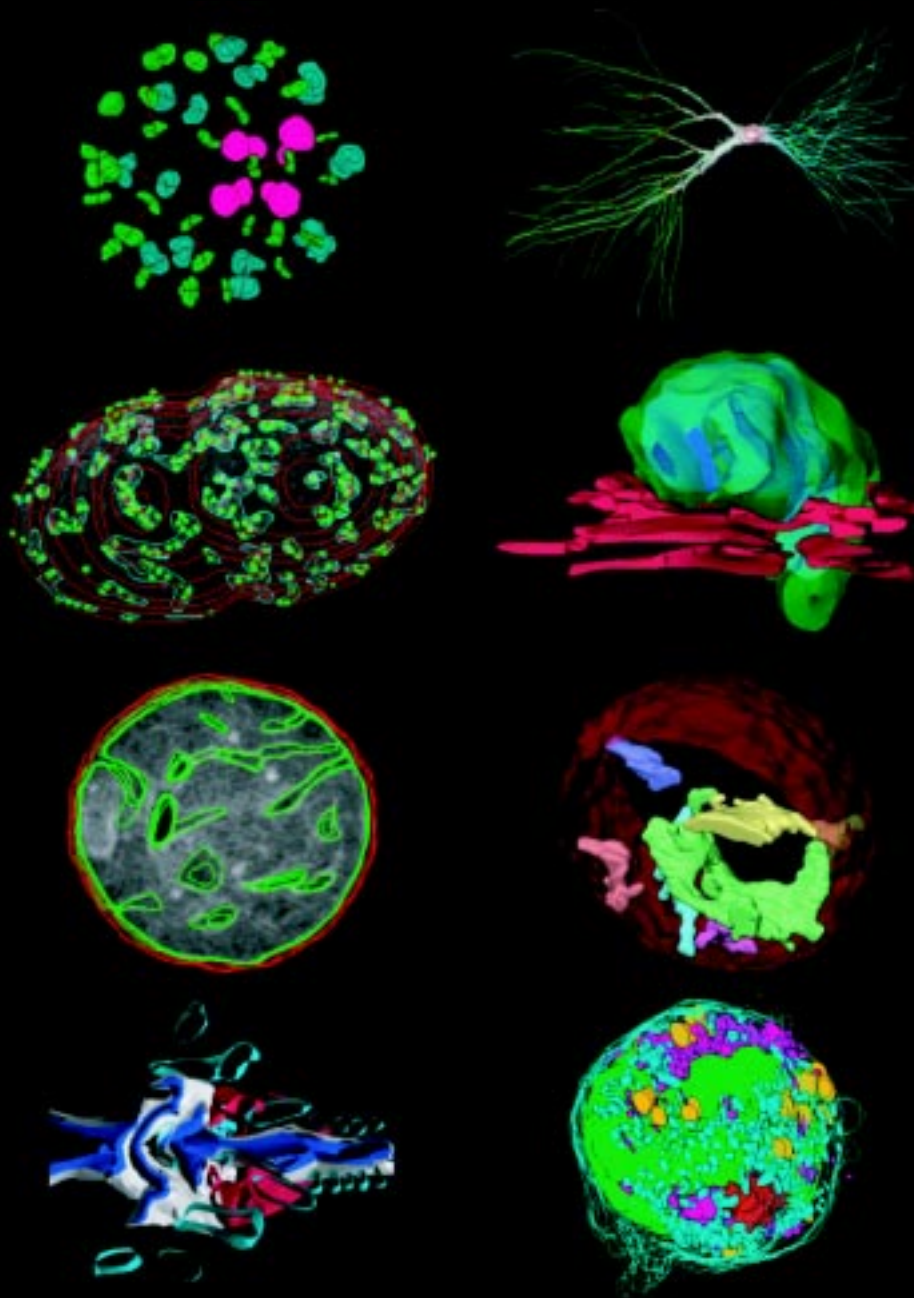


# National Patterns of R&D Resources: 1998

## An SRS Special Report



**Division of Science Resources Studies  
Directorate for Social, Behavioral and Economic Sciences**

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An SRS Special Report

Steven Payson

Division of Science Resources Studies  
Directorate for Social, Behavioral, and Economic Sciences  
National Science Foundation



March 1999

## NOTE

Data in this report are current as of August 1998. Therefore, these data are more current (reflecting updates and revisions) than data on the same variables provided in *Science and Engineering Indicators, 1998*, which had been released in February 1998.

# ABOUT THE COVER

This figure was Figure 1 in Marko, M. and Leith, A., “Sterecon—three-dimensional reconstruction from stereoscopic contouring” in *Journal of Structural Biology*, 116:93-98 (1996). Reprinted by permission of the authors and Academic Press. Copyright © 1996.

The pictures shown represent examples of data obtained by users of the Biological Microscopy and Image Reconstruction Resource, which is located within the Wadsworth Center of the New York State Department of Health ([http://www.wadsworth.org/spider\\_doc/bmirr/3-D.html](http://www.wadsworth.org/spider_doc/bmirr/3-D.html)). Each was produced by contouring data obtained from 3-D light microscopic (LM) or high voltage electron microscopic (HVEM) images, using the Sterecon (stereoscopic reconstruction) system developed at the Resource. Most of these pictures, and much of the research associated with them, were made possible through grants from the National Science Foundation and the National Institutes of Health.

Clockwise from upper left: (1) orientation of nuclear cell-division axes in a sea urchin embryo as revealed by confocal LM; (2) dendritic branches of a hippocampal neuron also from a confocal volume; (3) a mammary tumor cell invading the peritoneum reconstructed from serial thick section HVEM; (4) an HVEM tomographic reconstruction of a rat-liver mitochondrion from a single thick section; (5) a human lymphocyte with abnormal golgi reconstructed from serial thick sections; (6) a mouse larynx reconstructed from serial paraffin (histological) LM sections; (7) an intermediate sub-volume tracing used to make the final mitochondrion model shown in number 4; and (8) a low-voltage cryo scanning EM image of a bacterium with islands of a surface protein labeled with immunogold.

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# ABBREVIATIONS

BEA	Budget Enforcement Act	HHS	Department of Health and Human Services
DC	District of Columbia		
DOC	Department of Commerce	NASA	National Aeronautics and Space Administration
DoD	Department of Defense		
DOE	Department of Energy	NIH	National Institutes of Health
FFRDC	federally funded research and development center	NSF	National Science Foundation
FTE	full-time equivalent	PPP	purchasing power parity
FY	fiscal year	R&D	research and development
GDP	gross domestic product	SSA	Social Security Administration
GSP	gross state product	S&Es	scientists and engineers
		USDA	Department of Agriculture



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